

ORIGINAL

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Date: 1/19/00 5:13pm
Subject: 12th Street Environmental Sample Results



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We completed our sampling event and DNREC completed the analysis of the samples collected from the 12th Street disposal area using XRF technology. A plan map showing the XRF sample results is on my desk. Lab confirmation of 20 % of the samples is still several weeks away.

The XRF results more or less confirm our thoughts and previous sampling events.

The results of 28 samples of sediment from the mud flat show a lead range of 15 to 4674 mg/kg (avg. value = 592). There are two areas where a cluster of sediment samples exceed a value of 200 mg/kg. One of these areas is near the actual facility and one is near the point where I indicated that the stream bank or "berm" was breached.

A set of 4 sediment samples collected 300 and 500 feet downstream indicate lead levels of 20 - 94 mg/kg. Thus, the impact area is somewhat limited.

Surface soil samples (6) collected from the erosional face of the stream bank along the fill area range from 2869 to 13,890 mg/kg. Samples (5) from the bank collected further downstream range from 35 - 297 mg/kg. Clearly the fill area is a source of contamination to the stream and the vertical and erosional face of the bank is the major source.

Surface soil samples (9) collected from within the obvious and mounded fill area range from 1330 to 7140 mg/kg. Surface soil samples (5) collected about 25 feet outside of the obvious mounded fill area range from 2240 - 3250 mg/kg. (There was obvious signs of fill type materials in this low area (e.g, hoses, etc.)). Clearly the fill is a source of lead.

Surface soil samples (3) collected outside of the obvious fill area (about 100 feet from the toe of the slope) range from 225 to 1150 mg/kg. My concern here is that the area of lead contamination may be huge and could be a limiting factor to excavation and removal of all contamination, especially given the limited area of stream impact.

Subsurface soil samples (8) from the fill area range from 98 - 28,600 mg/kg. This goes along with our other data that suggests that some of the fill contains ALOT of lead.

I am trying to resolve the background data since two of the 5 samples exceed 5000 mg/kg. I am not sure where they were collected.

My review of the data suggests that the day to day and storm induced erosion of the bank is the most important problem at this Site. The vegetative cover on the bank does not stop any mild to moderate erosion (the percent cover is extremely small). However, since the tree roots hold the bank together, there is good temporary protection against major failure of the stream bank (until the tree falls over, 2 have). The data show and the observations support the fact that the erosion of the bank contributes lead to the mud flat. The

levels in the mud flat are not extreme, but are elevated in some locations.

If protection of the stream is a goal, then the bank must be reconfigured such that it can support healthy vegetation that minimizes erosion or a synthetic support and barrier must be placed between the fill and the River.

Reconfiguring the fill area will require movement of the fill to lessen the slope. Afterwards a cover can be applied and appropriate vegetation installed to maximize stability. The movement of the fill will basically destroy all the vegetative area between the stream and the railroad tracks since a large area will be needed to redistribute enough material to obtain a suitable slope. I doubt that DNREC will be keen on the idea of placing the waste. I think that if we pick it up, we're hauling it out.

Placing a synthetic barrier (e.g., gabion wall) will reduce the amount of fill to be removed or moved, but result in an unnatural bank.

If the data still indicate that an action is appropriate here, my general suggestion for a Removal Action is to:

- 1) install temporary barrier between the River and the fill area (e.g., dam)
- 2) remove vegetation from the face of the stream bank
- 3) conduct a minor amount of regrading of the fill to control and direct drainage/runoff to a designated location and remove drums at this time
- 4) install new protective bank, e.g., rock wall, gabion wall, etc. and anchor below low tide elevation
- 5) provide clean soil cover to fill area and space between fill and new bank

Please let me know of your opinion ASAP.

Mike